

Application Serial No. 10/630,034
Amendment dated March 17, 2006
Reply to Office communication of December 19, 2005

REMARKS/ARGUMENTS

Applicant previously cancelled claims 1-26 without prejudice or disclaimer, and now adds non-elected claims 27-39 to these cancelled claims by canceling them without prejudice or disclaimer as well. The amendment to claim 43 defines the inorganic particulate carrier as having a particle size less than 100 microns in lieu of the less than 20 micron particle size. Originally filed Claim 22 of the parent application supports this amendment. This amendment also includes new product by process claims 44-52 supported by cancelled claims 29-35 and 39.

This amendment addresses the points raised by the examiner in the order set out in the December 19, 2005 Office communication.

The Double Patenting Rejection

The examiner rejected claim 40 in the December 19, 2005 Office communication on the grounds of obviousness-type double patenting in view of claim 12 of the patent issuing from the parent application (United States Patent No. 6,669,835). Applicant submits a Terminal Disclaimer with this amendment to overcome the rejection.

The Rejection Under 35 USC §§ 102 (e) and 103 (a) and Traverse

The examiner also rejected claims 42 and 43 in the December 19, 2005 Office communication on grounds of anticipation and/or obviousness under 35 USC §§ 102 (e) and 103 (a) in view of Harris et al., United States Patent No. 5,672,432 ("Harris") and Doshi et al. United States Patent No. 4,341,689 ("Doshi"). Applicant traverses these rejections and requests further consideration and reexamination.

Application Serial No. 10/630,034
Amendment dated March 17, 2006
Reply to Office communication of December 19, 2005

Applicant distinguishes both Harris and Doshi for failing to teach or suggest the core concept of the invention, a product produced by the process of electrocoating polymerizable reactants in an aqueous medium having a metal containing catalyst with a water solubility of less than 1% by weight in water at 25° C. sorbed onto an inorganic particulate carrier having a particle size less than 100 microns or less than 20 microns, and subsequently curing the coating. The application shows the benefits of the claimed process in Tables 1 and 2 (pp. 37, 38) in that it forms surface coatings with fewer surface imperfections, which Harris and Doshi also fail to teach or suggest.

As to the 35 U.S.C. § 102 (e) rejection over Harris, the patentee describes a self-crosslinking polymer composition formed from an epoxide-functional prepolymer reacted with an amine having at least one blocked primary amine group and at least one epoxide reactive group. The addition of an acid to neutralize the composition unblocks the primary amine group and aids in the dispersion of the polymer in water. Harris uses the composition as a coating material. The reference describes the use of "pigments" with the polymer in column 7, lines 49 et seq., and specifically mentions fumed silica at line 60, without giving the particle size. The reference also describes the use of catalysts to aid the polymerization, describing them in column 9, lines 1-11, and specifically mentions tin salts such as dibutyltin dilaurate.

The Harris disclosure as a whole, however does not show applicant's first step of combining the tin catalyst with the pigment and then adding it to the pre-polymer as in the present invention. The data of the present application show the benefit of preparing a catalyst in this way. Examples 3 and 3A of the present application clearly show that by combining a tin catalyst with a pigment to obtain a catalyst sorbed onto the surface of the

Application Serial No. 10/630,034
Amendment dated March 17, 2006
Reply to Office communication of December 19, 2005

pigment and then adding it to a pre-polymer results in coating compositions that reduce surface imperfections. Example 3 follows the method of the invention by sorbing a tin catalyst (trioctyltin oxide, "TOTO") onto fumed silica and mixing it into a pigmented aqueous paste containing an epoxy based grind resin. Example 3A repeats the experiment but employs the TOTO catalyst by itself, i.e., Example 3A omits the step of sorbing TOTO onto fumed silica, but still uses it in combination with the pigmented epoxy based grinding resin. Table 2 shows the improved results when sorbing TOTO onto fumed silica when compared to the addition of TOTO to a pigmented epoxy without first sorbing it onto silica. The example 3 coating has fewer surface imperfections than the 3A example which did not employ TOTO sorbed on fumed silica but only combined it with a pigmented, epoxy.

These data clearly illustrate that mixing the catalyst (e.g. TOTO) with a pigmented compound did not result in a catalyst combination that had the same effect as a catalyst sorbed onto a carrier. The fact that pigment is present doesn't give rise to the presumption that the pigment will sorb the catalyst as required by the process of the present invention. The data do not lead to this conclusion, but on the contrary show improved results in a pigmented system only when sorbing the catalyst onto the carrier.

As to the 35 U.S.C. § 102 (e) rejection over Doshi, the reference also fails to teach or suggest the invention for substantially the same reasons as Harris. Doshi describes a two component polyurethane coating system. The first contains an amine catalyst absorbed into a molecular sieve combined with a resin having active hydrogen groups such as a polyester. When mixed with the second component and exposed to air, atmospheric moisture causes the release of the amine from the molecular sieve enabling it to function as a urethane catalyst. The second component, an isocyanate, contains a tin accelerator deactivated with

Application Serial No. 10/630,034
Amendment dated March 17, 2006
Reply to Office communication of December 19, 2005

a low molecular weight organic acid such as acetic acid. Vaporization of the acetic acid after mixing the two components frees the tin accelerator to speed the cure of the system.

The reference describes pigmenting the polyester prior to combining it with the isocyanate. When used as a coating composition, the mixed components have longer pot life due to the temporary inactivation of the amine catalyst and the tin accelerator. The reference, however, still does not teach or suggest the advantage of sorbing the tin component on a carrier. Adding the tin containing isocyanate component to the pigmented polyester does not show applicant's invention. Again, the presence of pigment doesn't give rise to the presumption that the pigment will sorb the catalyst as required by the process of the present invention and yield the consequent improved results. The data of applicant's examples 3 and 3A do not lead to this conclusion, but on the contrary show improved results only with a catalyst sorbed onto the carrier, independent of any pigment in the composition.

As for the 35 U.S.C. § 103 (a) rejection based on the combination of Doshi with Harris, applicant points out Doshi teaches a catalyst system for a two component urethane composition that when added to the components will provide extended pot-life or package stability. Doshi applies an amine catalyst to a molecular sieve and adds this molecular sieve-amine combination to a mixture of the two components that form the polyurethane precursor, i. e., a resin having functional hydrogens and a polyisocyanate. Over a period of time, atmospheric moisture drives the amine out of the molecular sieve and it becomes free to catalyze the reaction of the two components to form the polyurethane.

Harris on the other hand describes a coating composition based on an aqueous dispersion of a "self-crosslinkable" cationic polymer for electro-coating a substrate. (Harris, col.2, lines 54-62). Combining the compositions of Harris and Doshi would defeat the object

Application Serial No. 10/630,034
Amendment dated March 17, 2006
Reply to Office communication of December 19, 2005

of the latter in that the "aqueous" composition of Harris, when added to the substantially anhydrous composition of Doshi, would immediately trigger the release of Doshi's amine catalyst and negate the extended pot-life or package stability obtained by the Doshi composition. Doshi relies on ambient moisture absorbed over a period of time to bring about the gradual release of the amine absorbed on the molecular sieve; however, adding the water in Harris' aqueous composition to Doshi's composition as part of the mixing procedure would surely cause the Doshi reactants to immediately form the urethane polymer, and eliminate any extended pot-life or package stability that the Doshi system had, all contrary to the objectives of the Doshi teachings.

A skilled artisan therefore would not combine the teachings of these references because she or he would have no motivation to do so, since that would eliminate the advantages of the Doshi composition. In fact the combination of Harris and Doshi, instead of providing motivation to combine their teachings, does just the opposite, i. e., they teach the disadvantage of making the combination, and in this respect teach away from applicant's invention.

Duplicate Claims

The examiner notes on page 5 of the December 19, 2005 Office communication that he considers claims 42 and 43 to be substantial duplicates of one another, apparently referring to the inorganic particulate carrier claimed in both as having a particle size less than 20 microns. He informed applicant that if he allowed claim 42 he would have to object to claim 43 under 37 C.F.R. § 1.75 since the claims appeared to duplicate one another.

Application Serial No. 10/630,034
Amendment dated March 17, 2006
Reply to Office communication of December 19, 2005

As noted previously, the amendment to claim 43 now defines the inorganic particulate carrier as having a particle size less than 100 microns in lieu of the less than 20 micron particle size originally claimed, and should make any objections to the two claims moot.

Conclusions

Applicant requests that the examiner withdraw the rejections in view of the foregoing amendments and remarks and pass the application to issue.

Respectfully submitted,

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CERTIFICATE OF FACSIMILE TRANSMISSION PURSUANT TO 37 C.F.R. § 1.6 (d)

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